

HIGH PERFORMANCE VARACTOR DIODES

Abstract of the Disclosure

A varactor diode having a first electrode comprising a well region of a first conductivity type in a substrate, a second electrode comprising a first plurality of diffusion regions of a second conductivity type abutting isolation regions disposed in said well region, and a second plurality of diffusion regions of said first conductivity type extending laterally from portions of said first plurality of diffusion regions not adjacent said isolation regions and having a dopant concentration greater than that of said first plurality of diffusion regions. The varactor has a tunability of at least approximately 3.5 in a range of applied voltage between approximately 0V to 3V, an approximately linear change in capacitive value in a range of applied voltage between approximately 0V to 2V, and a Q of at least approximately 100 at a circuit operating frequency of approximately 2GHz.